

WHAT IS CLAIMED IS:

1. In an internet exchange carrying multicast content, a method for intelligently forwarding a content packet received at a layer 2 switch, the method comprising the steps of:

receiving the content packet at the layer 2 switch;  
determining whether a multicast indicator is present in a destination address included in the content packet; and  
if said multicast indicator is present, then  
querying a forwarding memory based on a lookup key,  
determining an outgoing port for the content packet based on the result of said querying of said forwarding memory, and  
forwarding the content packet to said outgoing port for subsequent delivery to a destination device.

2. The method of claim 1, further comprising the step of:  
deriving a destination MAC address from the content packet, wherein said destination MAC address serves as said lookup key to query said forwarding memory.

3. The method of claim 2, further comprising the step of:  
querying a forwarding table within said forwarding memory based on said lookup key, wherein said forwarding table comprises at least one outgoing port index corresponding to one or more destination MAC addresses.

4. The method of claim 1, further comprising the step of:  
extracting a source address, a destination address, a protocol type, and an incoming port from the content packet to derive an explicit source lookup key, wherein said explicit source lookup key serves as said lookup key to query said forwarding memory.

5. The method of claim 4, further comprising the step of:  
querying a session table within said forwarding memory based on said lookup key, wherein said session table comprises one or more session entries, each session entry comprising a source address, a destination address, protocol type, an incoming port, and an outgoing port index.

6. The method of claim 1, further comprising the step of:  
creating a new entry in said forwarding memory if the result of said querying of said forwarding memory returns no match for said lookup key, wherein said new entry includes a cross-reference to said outgoing port for subsequent queries.

7. The method of claim 6, further comprising the step of:  
processing a neighbor list to determine said outgoing port from a destination address indicated in the content packet in response to the result.

8. The method of claim 1, further comprising the steps of:  
returning an outgoing port index as the result of said querying of said forwarding memory; and  
querying an outgoing port lookup table to determine said outgoing port.

9. The method of claim 8, further comprising the step of:  
receiving a control packet at the layer 2 switch, wherein said control packet includes at least one of a join set and a prune set for a multicast group.

10. The method of claim 9, further comprising the step of:  
modifying at least one of said forwarding memory and said outgoing port lookup table in response to said control packet.

11. A layer 2 switch for intelligently forwarding a content packet carrying multicast content, comprising:

means for determining whether a multicast indicator is present in a destination address included in the content packet;

means for querying a forwarding memory based on a lookup key;

means for determining an outgoing port for the content packet based on the result of said querying of said forwarding memory; and

means for forwarding the content packet to said outgoing port for subsequent delivery to a destination device.

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